

ABSTRACT

DISSERTATION: An Examination and Comparison of Two Approaches to Hybrid Teaching of Non-Majors Biology: Assessing Changes in Student Attitude and Levels of Engagement Based on Learning Styles

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Recent pushes for reform in college Biology education have resulted in new and high-technology approaches to the teaching of science. One such approach is the use of a media:scape classroom, a classroom with flexible seating arrangements and interconnected computer screens throughout the room. Ball State University is one of only two universities in the nation that currently use this type of classroom. As such, research regarding the teaching of Biology in this classroom is minimal.

The purpose of this study was multi-faceted. One main goal was to assess changes in student attitude and engagement in response to being taught non-majors Biology in this classroom as well as in a traditional lecture hall. Additionally, this study aimed to assess student perception toward each classroom as well as to compare self-reported final expected grade between students in each classroom. Both classrooms employed active learning techniques. Total sample size was $n = 114$, with $n = 94$ in the traditional lecture hall and $n = 20$ in the media:scape classroom. In an effort to glean more specific conclusions and provide for a more robust analysis, students were first factored into predominant learning style (visual versus verbal) as well as gender.

Several 2-way analysis of variances (ANOVAs) showed no significant increases or decreases in student attitude or engagement. No significant difference was found between student-reported final expected grades, either. However, female students do seem to have a much more positive perception toward the media:scape classroom than they do toward the traditional lecture hall.

Of additional interest is the implication of no significant change in student attitude or engagement. This would seem to suggest that the media:scape classroom itself cannot significantly alter student attitude or engagement. Rather, it is the pedagogical approach within the classroom that is important. Although a relatively high percentage of students did indicate that they felt the media:scape classroom helped their learning, this does not translate directly to a shift in either attitude or engagement.

The significant positive female perception toward the media:scape class is a promising result, especially given the university's current plan of expanding the media:scape classroom across campus. The results of this study, when considered together, also suggest that a more comprehensive instrument be used to assess attitude and engagement in this non-majors Biology course.